

WHAT IS CLAIMED IS:

1. A color CRT comprising:

a panel having a substantially flat outer surface and an inner surface having a certain curvature; and

a mask having a plurality of electron beam passing holes;

wherein an effective surface diagonal size of the panel is not greater than about 534mm;

wherein a central portion transmittance rate is within the range of about 45-75%;

wherein the panel satisfies the condition $1.1 \leq (R_{xs}/R_{yc}) \leq 4.6$;

wherein R_{xs} is defined as an inner curvature radius along an edge of a longer side of the panel; and

wherein R_{yc} is defined as an inner curvature radius along a line in the center of the panel parallel to the shorter side of the panel.

2. The color CRT of claim 1, wherein the panel satisfies the following condition $0.9 \leq (T_y/T_x) \leq 1.3$, wherein T_y is the thickness of the panel at the center of the longer edge of the effective area of the panel and T_x is the thickness of the panel at the center of the shorter edge of the effective area of the panel.

3. The color CRT of claim 1, wherein the panel satisfies the following condition $(T_d/T_c) \geq 1.5$, wherein T_d is the thickness of the panel at a corner of the effective area of the panel and T_c is the thickness of the panel at a central point of the panel.

4. The color CRT of claim 1, wherein an outer surface curvature radius of the panel is not less than about 30,000 mm.

5. The color CRT of claim 1, wherein the panel satisfies the following condition $1.1 \leq (R_{xs}/R_{yc}) \leq 2.7$.

6. The color CRT of claim 1, wherein thickness of the mask is not greater than about 0.13mm.

7. The color CRT of claim 6, wherein the panel satisfies the following condition $0.10\text{mm} \leq T_m \leq 0.12\text{mm}$, wherein T_m is the thickness of the mask.

8. The color CRT of claim 1, wherein the panel satisfies the following condition $1.3R \leq R_{yc} \leq 3.3R$, wherein R is $1.767 * \text{an effective surface diagonal size of the panel}$.

9. The color CRT of claim 8, wherein the panel satisfies the following condition $1.8R \leq R_{xs} \leq 5.8R$.

10. The color CRT of claim 1, wherein the panel satisfies the following condition $(R_{xs}/R_{ys}) \geq 1.1$, wherein R_{ys} is defined as an inner curvature radius along an edge of a shorter side of the panel .

11. The color CRT of claim 1, wherein the panel satisfies the following condition $(R_{ys}/R_{yc}) \leq 0.8$, wherein R_{ys} is defined as an inner curvature radius along an edge of a shorter side of the panel.

12. The color CRT of claim 1, wherein the panel satisfies the following condition $0.9 \leq (R_{xs}/R_{yc}) \leq 1.1$

13. The color CRT of claim 1, wherein the panel satisfies the following condition $R_{xc} \geq R_{dc} \geq R_{yc}$, wherein R_{xc} is defined as an inner curvature radius along a line in the center of the panel parallel to the longer side of the panel and wherein R_{dc} is defined as an inner curvature radius along a diagonal line of the panel.

14. A color CRT comprising:

a panel having a substantially flat outer surface and an inner surface having a certain curvature; and

a mask having a plurality of electron beam passing holes;

wherein an effective surface diagonal size of a panel is not greater than about

534mm;

wherein the panel satisfies the following condition $1 \leq (R_{xs}/R_{yc}) \leq 5$;

wherein R_{xs} is defined as an inner curvature radius along an edge of a longer side of the panel; and

wherein R_{yc} is defined as an inner curvature radius along a line in the center of the panel parallel to the shorter side of the panel.

15. The color CRT of claim 14, wherein the panel satisfies the following condition $0.9 \leq (Ty/Tx) \leq 1.3$, wherein Ty is the thickness of the panel at the center of the longer edge of the effective area of the panel and Tx is the thickness of the panel at the center of the shorter edge of the effective area of the panel.

16. The color CRT of claim 14, wherein the panel satisfies the following condition $(Td/Tc) \geq 1.5\text{mm}$, wherein Td is the thickness of the panel at a corner of the effective area of the panel and Tc is the thickness of the panel at a central point of the panel.

17. The color CRT of claim 14, wherein an outer surface curvature radius of the panel is not less than about 30,000mm.

18. The color CRT of claim 14, wherein the panel satisfies the following condition $1.1 \leq (Rxs/Ryc) \leq 2.7$.

19. The color CRT of claim 14, wherein thickness of the mask is not greater than about 0.13mm.

20. The color CRT of claim 14, wherein the mask satisfies the following condition $0.10\text{mm} \leq Tm \leq 0.12\text{mm}$, wherein Tm is the thickness of the mask.

21. The color CRT of claim 14, wherein the panel satisfies the following condition $1.3R \leq Ryc \leq 3.3R$, wherein R is $1.767 * \text{an effective surface diagonal size of the panel}$.

22. The color CRT of claim 14, wherein the panel satisfies the following condition $1.8R \leq R_{xs} \leq 5.8R$, wherein R is $1.767 * \text{an effective surface diagonal size of the panel}$.

23. The color CRT of claim 14, wherein the panel satisfies the following condition $(R_{xs}/R_{ys}) \geq 1.1$, wherein R_{ys} is defined as an inner curvature radius along an edge of a shorter side of the panel .

24. A color CRT comprising:

a panel having a substantially flat outer surface and an inner surface having a certain curvature; and

a mask having a plurality of electron beam passing holes;

wherein an effective surface diagonal size of a panel is not greater than about 534mm;

wherein the panel satisfies one of the conditions $(0.4*Z_d) \leq Z_y \leq (0.6*Z_d)$ and $(0.4*Z_d) \leq Z_x \leq (0.6*Z_d)$;

wherein Z_d is height difference between a point on the inner surface of the panel at the central point and a point on the inner surface of the panel at the corner of the effective area of the panel;

wherein Z_y is height difference between a point on the inner surface of the panel at the central point and a point on the inner surface of the panel at the center of the longer edge of the effective area of the panel; and

wherein Z_x is height difference between a point on the inner surface of the panel at the central point and a point on the inner surface of the panel at the center of the shorter edge of the effective area of the panel.

25. The color CRT of claim 24, wherein the panel satisfies one the following conditions $(0.44*Zd) \leq Zy \leq (0.56*Zd)$ and $(0.44*Zd) \leq Zx \leq (0.56*Zd)$.

26. The color CRT of claim 24, wherein the panel satisfies the following condition $0.21*Zy \leq Z(y/2) \leq 0.25*Zy$, wherein $Z(y/2)$ is height difference between a point on the inner surface of the panel at the central point and a point on the inner surface of the panel half way between the central point and the center of the longer edge of the effective area of the panel.

27. The color CRT of claim 24, wherein the panel satisfies the following condition $0.23*Zx \leq Z(x/2) \leq 0.27*Zx$, wherein $Z(x/2)$ is height difference between a point on the inner surface of the panel at the central point and a point on the inner surface of the panel half way between the central point and the center of the shorter edge of the effective area of the panel.

28. The color CRT of claim 24, wherein the panel satisfies the following condition $0.22*Zd \leq Z(d/2) \leq 0.26*Zd$, wherein $Z(d/2)$ is height difference between a point on the inner surface of the panel at the central point and a point on the inner surface of the panel half way between the central point and the corner of the effective area of the panel.

29. The color CRT of claim 24, wherein the panel satisfies the following condition $1.5 \leq (Td/Tc) \leq 2.3$, wherein Td is the thickness of the panel at a corner of the effective area of the panel and Tc is the thickness of the panel at a central point of the panel.

30. The color CRT of claim 24, wherein the panel satisfies the following condition $1 \leq (Rxs/Ryc) \leq 5$.

31. The color CRT of claim 24, wherein a central portion transmittance rate of the panel is within the range of about 45-75%,
32. The color CRT of claim 24, wherein the panel satisfies the following condition $0.9 \leq (Ty/Tx) \leq 1.3$, wherein Ty is the thickness of the panel at the center of the longer edge of the effective area of the panel and Tx is the thickness of the panel at the center of the shorter edge of the effective area of the panel.
33. The color CRT of claim 24, wherein thickness of the mask is not greater than about 0.13mm.
34. The color CRT of claim 30, wherein the panel satisfies the following condition $1.3R \leq Ryc \leq 3.3R$, wherein R is $1.767 * \text{an effective surface diagonal size of the panel}$
35. The color CRT of claim 30, wherein the panel satisfies the following condition $1.8R \leq Rxs \leq 5.8R$.